EVB-USB2240-IND Evaluation Board Revision A

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1 Overview

EVB-USB2240-IND Revision A Evaluation Board for the SMSC USB22240 USB2.0 Compatible Media Controller. The goal of the EVB-USB2240-IND user guide is provide an application platform for developers in the following Applications: Flash Media Card Reader/Writer, Printers, Desktop and Mobile PCs, Consumer A/V, and Media Players/Viewers. The EVB-USB2240-IND demonstrates driver compatibility with Microsoft Vista, Windows XP, Windows ME, Windows 2K SP4, Apple OSx, and Linux Mass Storage Class Drivers.

1.1 Features

- Features the USB2240 in a 36 Pin QFN RoHS compliant package.
- Supports these Media Types: SmartMedia (SM), Secure Digital (SD), Memory Stick (MS) 4 & 8 bit, and MultiMedia Card (MMC) 4 & 8 bit interfaces.
- Support for simultaneous operation of all above devices.
- Low Cost 2-Layer Space Saving Design
- Supports EEPROM memory upgrade via USB bus.
- Operates from a single voltage (+5.0V, regulated) 'wall wart' external power supply or bus-powered operation.
- Internal FET Power Switching for All Media Types.
- Activity LED indicator.
- Single Crystal Clock Source
- Single Onboard +3.3V Regulator.
- Optional +3.3V power LED indicator.
- Optional Card power LED indicator.
- Optional serial EEPROM for configuration in a socket for easy programming

1.2 General Description

The EVB-USB2240-IND is a demonstration and evaluation platform featuring the USB2240 Media Controller in a 2-layer RoHS compliant PCB. It is designed to support internal default settings and an external EEPROM for customized functionality. The EVB-USB2240-IND can operate in self-powered mode with an external power supply or in bus-powered mode getting its +5V source from the upstream connector. Default configuration can be changed by adding an EEPROM into the provided socket. Footprints are available for optional features such as LED indicators. Figure 1.1 shows the top and bottom level silk screen and copper layer. The EVB-USB2240-IND is compatible with Microsoft Vista, Windows XP, Windows ME, Windows 2k SP4, Apple OSx and Linux Mass Storage Class Drivers.

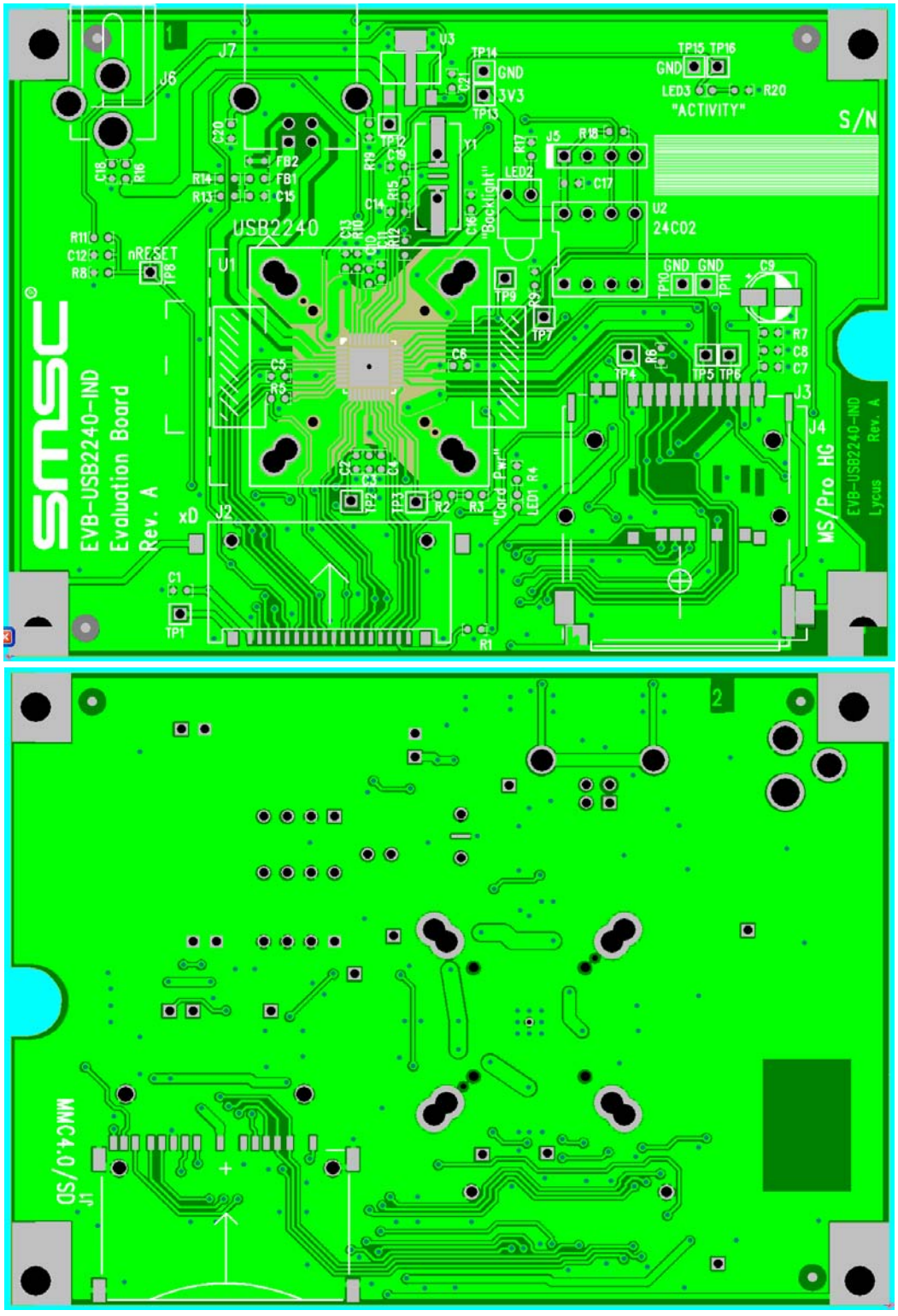

Figure 1.1 Top Level Silk Screen and Copper Layer

2 Getting Started

The EVB-USB2240-IND is configured by internal default registers. In this configuration it operates as a generic self or bus-powered USB 2.0 Media Controller with SMSC standard VID/PID/DID settings.

2.1 Configuration

The SMSC EVB-USB2240-IND is designed for flexible configuration solutions. It demonstrates functionality with default internal register settings, configurable external EEPROM, and EEPROM configuration update via the USB host. When an EEPROM is attached, the USB2240 will auto detect the interface and configure itself with the EEPROM contents. The EVB-USB2240-IND demonstrates how the EEPROM configuration settings can be changed without physical EEPROM removal.

2.1.1 Configuration Source - Internal Default

When the device does not see an EEPROM upon power-up, the EVB-USB2240-IND uses internal default register settings; it sets the Vendor ID, Product ID, Language ID, and Device ID, and a few other choices. An improved feature with the USB2240 is that external passive components are not needed to set the IC configuration mode.

2.1.2 Configuration Source - External EEPROM

Upon power-up the USB2240 looks for an attached EEPROM on its I2C interface. The EVB-USB2240-IND provides an 8-pin DIP socket IC U2 for an external EEPROM of type 24C02 to customize the Media Controller's settings. The EEPROM contains 256 bytes of user customizable settings. Among the settings are Vendor ID, Product ID, and Device ID numbers. For details on the fields please see the USB2240 Software Release notes.

2.1.3 Power Source - Self/Bus Powered

The EVB-USB2240-IND supports both self and bus powered operation. By default the EVB-USB2240-IND is populated for bus powered operation. Refer to Table 2.1 for resistor population options to change the power source.

Table 2.1 Population Options for Self or Bus Powered Operation

POWER SOURCE	R14	R16
Bus Powered (Default)	Populate	Do not Populate
Self Powered	Do not Populate	Populate

2.1.4 Clock Source - Crystal or Resonator

The EVB-USB2240-IND is designed to support either a crystal or a resonator. Because crystals offer more accurate center frequency, the evaluation board is populated with a crystal and its supporting decoupling capacitors. Some customers prefer lower cost resonators, which eliminates the need for external decoupling, lowering bill of material expense.

2.1.5 Configuration Source - USB Upstream

The EEPROM supporting the EVB-USB2240-IND is configured via a USB cable connected to the upstream connector with a SMSC configuration Tool named USBDM see USB2240 Software Release Notes for details. USBDM allows for modification of Vendor ID, Product ID, Language ID, Device ID, and configuration settings see Figure 2.1.

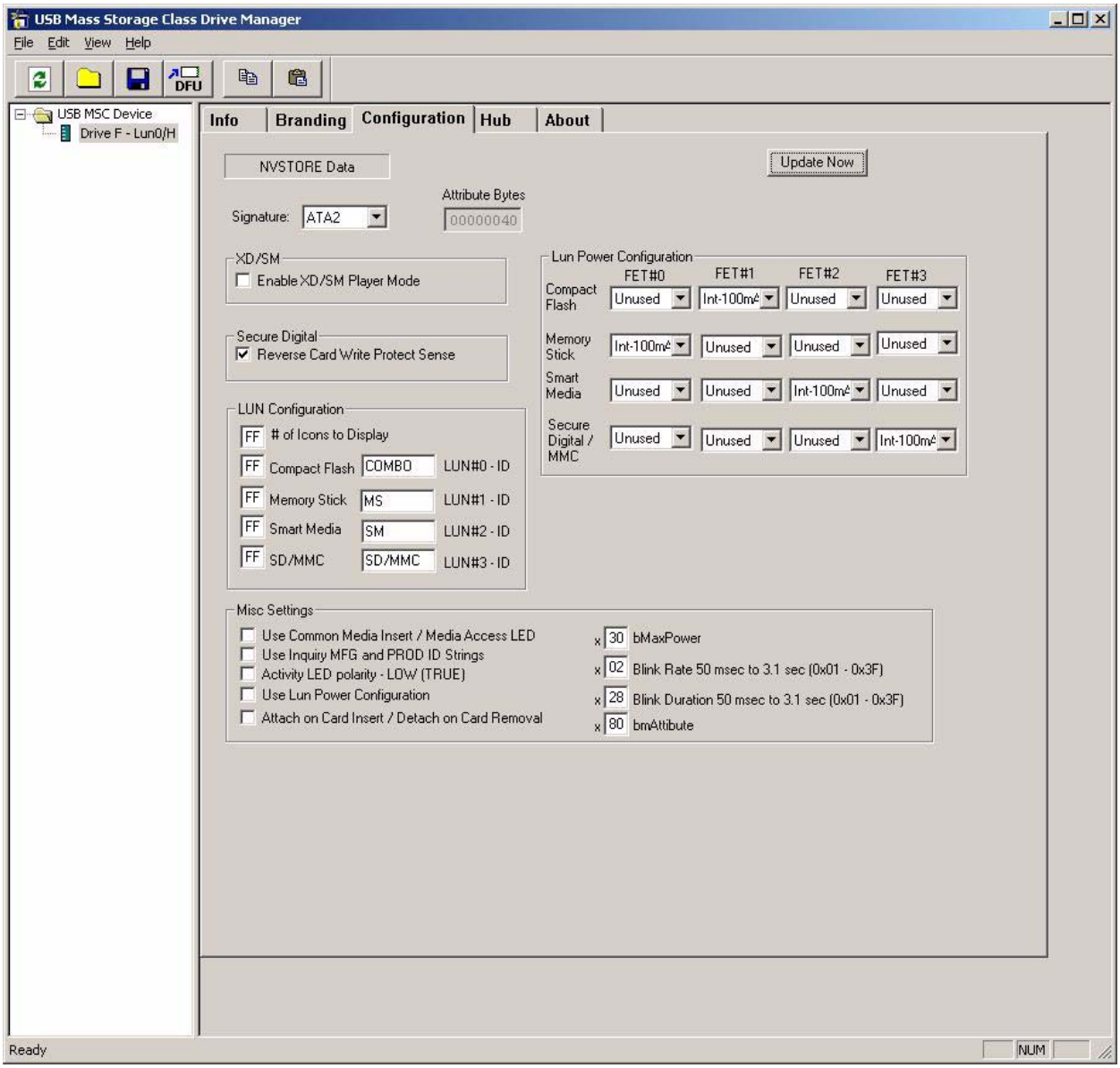

Figure 2.1 USBDM Configuration Interface